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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,913

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Atsushi Fukunaga

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7590

02/25/2009

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EXAMINER

LACLAIR, DARCY D

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

02/25/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<i>Office Action Summary</i>	Application No.	Applicant(s)	
	10/595,913	FUKUNAGA, ATSUSHI	
	Examiner	Art Unit	
	Darcy D. LaClair	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 5 December 2009.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on 12/5/2009.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The new grounds of rejection set forth below are necessitated by applicant's amendment filed on 12/5/2009. In particular, Claim 1 has been amended to recite wherein the needle crystal filler (c) is selected from the group consisting of sepiolite, wollastonite, and a needle crystal-type calcium carbonate. This amendment constitutes some, but not all, members of the Markush group formerly found in now cancelled Claim 5. Additionally, new claims 9-11 recite an aspect ratio for the filler, narrow the range of parts by weight for the needle crystal filler, and specify the hydrocarbon based plasticizer, respectively. These limitations were not present in the claims at the time of the preceding Office Action. Thus, the following action is properly made FINAL.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers are of record in the file.

Claim Rejections - 35 USC § 103

3. Claims 1-4, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (US 6,300,404) in view of Katayama et al. (US 5,164,172).

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With regard to Claim 1, Nishimura teaches a curable polymer composition comprising an oxyalkylene polymer having a silicon containing group which has a hydroxyl or hydrolysable group bonded to the silicon atom and a paraffinic hydrocarbon. (see abstract) The oxyalkylene polymer having a silicon group which has a hydroxyl is consistent with applicant's polyoxyalkylene containing at least one reactive silyl group. Furthermore, applicant's detailed description substantially overlaps with Nishimura with respect to the polyoxyalkylene. (See applicant's p. 3 line 15 through p. 12 line 25 compared to Nishimura col 1 line 65 through col 5 line 20) The paraffinic hydrocarbon, which functions as a plasticizer (see col 6 line 53-64), is preferably between 1 and 60 weight parts per 100. (see col 5 line 58-59) This encompasses applicant's claimed range for hydrocarbon based plasticizer, 5-50 parts by weight, with sufficient specificity that one of ordinary skill in the art would be directed to applicant's claimed range. With regard to the needle crystal filler, Nishimura teaches several types of filler which may be incorporated, including calcium carbonate, asbestos, glass fiber, and carbon fiber. The asbestos and glass fibers constitute fillers with needle like morphologies. (see col 8 line 1-10) In the examples, 120 parts by weight of filler are used. (col 8 ln 40) This falls within applicant's claimed range. Additionally, the fillers are taught as optional, (see col 7 line 60-62, col 8 line 1-2) so the range in which they are taught is from 0 to around 120 weight parts, which significantly overlaps with applicant's claimed range. Nishimura teaches that the curable polymer may be used as a sealing material, coating, adhesive, caulking material, coating material, and the like. (See col 8 line 26-29) While Nishimura teaches calcium carbonate and fillers with needle like morphologies, Nishimura does

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not specifically teach sepiolite, wollastonite, or a needle crystal-type calcium carbonate. Katayama teaches acicular shaped calcium carbonate particles. An acicular shape is consistent with “needle crystal” structure. Katayama teaches, specifically, an acicular-shaped aragonite calcium carbonate crystal form (see Katayama abstract), which is especially used in plastics to improve rigidity, surface smoothness, and whiteness, while also solving problems of workability, labor hygiene, and cost. (see Katayama col 4 ln 24-36) It further can be used as a thickener for pastes, sealing materials, and paints, and is particularly useful due to the thixotrophy that its acicular (needle) shape provides. (see Katayama col 4 ln 50-53) Katayama provides clear teachings as to the structure of the calcium carbonate, as well as clear motivation to make the selection of these particular calcium carbonate structures (needle shaped and crystalline) when considering the filler to be applied in a caulk, sealing material, paint, or paste. It would be obvious to one of ordinary skill in the art to employ the filler of Katayama in the polymer composition of Nishimura to obtain the variety of benefits disclosed.

With regard to Claim 2, Nishimura exemplifies undecane and tridecane, paraffinic hydrocarbons, in 20 parts per 100 parts by weight of the silyl based polymer. (See Table 1, Col 8 line 42-49), and teaches a preferable range for the paraffinic hydrocarbon between 1 and 60 weight parts per 100, which covers applicant’s entire range. (see col 5 line 58-59)

With regard to Claim 3, Nishimura teaches a paraffinic hydrocarbon (see abstract, col 5 line 49-65) as well as chlorinated paraffins. (see col 7 line 7-8)

With regard to Claim 4, Nishimura teaches the isoparaffins 2-ethylheptane, 3-methylheptane, 2-methyloctane, 3-methyloctane, 2-methylnonane, 3-methylnonane, 4,5-diporopyloctane, 3-methyltridecane, 6-methyltridecane, and the like. (see col 5 line 5 - 55) These constitute a significant group of isoparaffin-based hydrocarbons, and significantly overlap with applicant's teachings (See applicant's p. 13 line 32-35).

With regard to Claim 6, Katayama teaches acicular shaped calcium carbonate particles. (See abstract) An acicular shape is consistent with "needle crystal" structure.

With regard to Claim 7, Nishimura teaches that the number of the reactive silicon-containing groups contained in the oxyalkylene polymer is at least one, preferably between 1.1 and 5, on average, per one molecule of polymer. (see col 3 line 58-60) The oxyalkylene polymer having a silicon group which has a hydroxyl is consistent with applicant's polyoxyalkylene containing at least one reactive silyl group. (See applicant's p. 3 line 15-p. 12 line 25, Nishimura col 1 line 65-col 5 line 20)

With regard to Claim 8, first with respect to the polyoxyalkylene polymer, Nishimura and applicant present nearly identical teachings. (see discussion above with respect to Claims 1 and 7) There is also a significant overlap of paraffinic groups (see discussion above with respect to Claim 4) Based on the teachings of Katayama and Fairchild, it would be obvious to one of ordinary skill in the art to incorporate a calcium carbonate needle crystal filler consistent with applicant's filler into the composition. Katayama teaches that an acicular-shaped aragonite calcium carbonate crystal form solves problems of workability, (see Katayama col 4 ln 24-36) and is particularly useful due to the thixotrophy that its acicular (needle) shape provides. (see Katayama col 4 ln

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50-53) This thixotrophy would confer an improved workability and extrudability because the viscosity of the composition would decrease due to shear forces as the mixing, blending, or extruding speed was increased. The thixotropic nature of the filler would also contribute to the initial fixability because the resin composition would have an increased viscosity when it was not under a shearing force, and therefore would hold its shape in an improved way. The combination of the similar polymeric components and the similar fillers would confer properties which are consistent with applicant's properties. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)

With regard to Claim 9, Katayama recites particle sizes of 0.5 μm to 4.0 μm by 10 μm to 100.0 μm . (See col 3 line 29-32.) This is an aspect ratio of 2.5 to 200.

With regard to Claim 10, Nishimura teaches a range from 0 to around 120 weight parts for the filler, and teaches calcium carbonate and needle shaped fillers. (see discussion above with regard to Claim 1). This encompasses (overlaps) applicant's claimed range. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See *In re Harris*, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir. 2005); *In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)

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4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (US 6,300,404) and Katayama et al. (US 5,164,172) in view of Okamoto et al. (US 6,183,551)

The discussion with regard to Nishimura and Katayama, above in paragraph 1, is incorporated here by reference.

With regard to Claim 11, Nishimura teaches the presence of a paraffinic hydrocarbon (see abstract, col 5 line 49-65) Nishimura does not specifically teach a cycloparaffin based hydrocarbon. Okamoto teaches a curable resin composition containing a saturated hydrocarbon polymer having at least one reactive silicon containing group in a molecule, and saturated hydrocarbon oligomers (see abstract) and teaches fillers such as calcium carbonate (see col 10 line 15). The saturated hydrocarbons include paraffinic oils and cycloparaffins such as naphthenic oils. (See col 8 line 35) These preferred hydrocarbons have good compatibility with the polymer having at least one reactive silicon containing group, and have a high plasticizing effect. (See col 8 line 43-44) Although the paraffinic oils may not provide the optimum results, they are inexpensive. (See col 8 line 51) It would be obvious to one of ordinary skill in the art to select a paraffinic hydrocarbon such as cycloparaffinic (naphthenic) oils for use in the invention of Nishimura in view of Katayama, for both the good compatibility and plasticizing effect they offer, as well as their inexpensive cost value.

Response to Arguments

5. Applicant's arguments filed 10/22/2008 have been fully considered. Specifically, applicant argues (A) the obviousness-type double patenting rejection is traversed on the grounds that the conflicting patent relates to a curable resin composition comprising an organic polymer and fillers, but does not disclose sepiolite, wollastonite, or needle crystal type calcium carbonate, which is the specific needle crystal filler of the present invention, (B) The 102 rejection of claims 1-6 and 8 over Nishimura is traversed on the grounds that Nishimura does not disclose the specific needle crystal filler of the present invention, (C) The 103 rejection of Claims 1-8 over Nishimura in view of Katayama and/or Fairchild is traversed on the grounds that Nishimura does not disclose the specific needle crystal filler of the present invention; Katayama discloses calcium carbonate crystals as a thickener, and Fairchild discloses calcium carbonate crystals for reinforcing, rigidity, and impact strength; The present invention achieves extrudability and fixability, which are not demonstrated by the conventional prior art, and one of ordinary skill would not have discovered the present invention based on a combined reading of the cited references, therefore the invention is unobvious.

With respect to arguments (A), applicant's arguments have been considered and the obviousness-type double patenting rejection been withdrawn *in light of applicant's amendment*. Support for the amendment among members of the Markush group previously recited in Claim 5 is acknowledged.

With respect to argument (B), applicant's arguments have been considered and the anticipation rejection of Claims 1-6 and 8 have been withdrawn *in light of*

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applicant's amendment. Support for the amendment among members of the Markush group previously recited in Claim 5 is acknowledged.

With respect to arguments (C), applicant's arguments have been considered, but are moot in view of the rejection set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
Art Unit 1796

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Supervisory Patent Examiner, Art Unit 1796